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# The Construct Validity of the Adjustment Scales for Children and Adolescents (ASCA) and the Preschool and Kindergarten Behavior Scales (PKBS)

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The Construct Validity of the Adjustment Scales for Children and Adolescents

(ASCA) and the Preschool and Kindergarten Behavior Scales (PKBS)

(TITLE)

BY

Jamie D. Rich

1974-

## THESIS

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Running Head: ASCA/PKBS

The Construct Validity of the Adjustment Scales for Children and Adolescents (ASCA)  
and the Preschool and Kindergarten Behavior Scales (PKBS)

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## Abstract

The Adjustment Scales for Children and Adolescents (ASCA) and the Preschool and Kindergarten Behavior Scales (PKBS) are two relatively new behavior assessment scales that measure youth problem behavior. The ASCA is designed to be completed by the child's classroom teacher. The PKBS is designed to be completed by the child's teacher, parent, or day care provider. Both scales are unique and are considered to be technically adequate. Many of their syndromes/subscales and global scales/composites are similar in nature and description according to their respective manuals. No research, however, has been conducted establishing convergent evidence of construct validity between these two instruments. The current study attempted to provide this needed research by comparing the ASCA and the PKBS. A sample of 5 and 6 year old children ( $n = 123$ ) from regular education classrooms were participants in the study. Regular education teachers were asked to complete both scales for randomly selected children in their kindergarten and 1st grade classrooms. Comparisons between the two scales were studied through correlational analysis. Results indicated preliminary evidence for convergent validity between the two instruments on the core syndrome/subscale level and on the global scale/composite level. Nonsignificant mean differences between ratings on the two scales yielded further evidence of convergent validity among like syndromes/subscales and global scales/composites. The information provided in this study is beneficial to school psychologists and other educational professionals looking for a more psychometrically sound, less subjective methods of assessing problem behavior in youths.

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# The Construct Validity of the Adjustment Scales for Children and Adolescents (ASCA) and the Preschool and Kindergarten Behavior Scales (PKBS)

## Chapter I

### Introduction

The use of behavior rating scales has experienced rapid growth over the past ten years (Elliott, Brusse, and Gresham, 1993). This growth can be attributed to several factors including the brief time demands of the rating scales, ease of administration and scoring, the need for more teacher and parental involvement in the assessment and intervention process, and the overall improvement of psychometric properties of a wide variety of rating scales (Elliott et al., 1993). There are several advantages of using rating scales. First, when completed by a teacher they are able to report a summation of a student's behavior over a wide range of characteristics based upon observations of a student over a long period of time (Merrell, 1993b). Also, since teacher's ratings are typically based upon an observation of the child over a long period of time, low incidence behaviors that are significant problems can be reported upon more easily (Merrell, 1998). Finally, rating scales are advantageous because the ratings given by teachers of student's behavior utilize observations that are carried out in the normal classroom environment (Merrell, 1993b).

Because of the growing use and importance of behavior rating scales in school psychology practice it is important to examine their psychometric characteristics. The Adjustment Scale for Children and Adolescents (ASCA) and the Preschool and Kindergarten Behavior Scales (PKBS) are two new scales with limited independent

research which purport to measure similar constructs. The ASCA is an objective behavioral rating scale for youths ages five through seventeen years (k-12) which is completed by the youth's classroom teacher. The PKBS is a measure completed by a child's teacher or parent and is used for evaluating social skills and problem behavior patterns in preschool and kindergarten aged children (ages 3-6). Both scales are useful for assessing behavior for children ages five and six years old.

There are several advantages to using scales that are completed by teachers rather than scales completed by the parents or peers of the subject or the subject themselves. One reason teacher reports are better than parental reports is that scales which rely on parents as informants are problematic because the parents play a role in the observed behavior pathology (McDermott, Watkins, Sichel, Weber, Keenan, Holland, & Leigh, 1995). This results in difficulty in correctly interpreting the results. Another problem with parent reports is that the observations and ratings provided by parents are often as much or more an indication of parent pathology as they are of disturbance of the child being rated. For example, a mother with depression may indicate incorrect ratings of the children that are more of a description of her than the child (Brody & Forehand, 1986; Fergusson, Lynskey, & Horwood, 1993; Phares, Compas, & Howell, 1989; McDermott et al., 1995; Richthers, 1992; Schaughency and Lahey, 1995). Children's self- and peer-reports also tend to be unreliable and problematic due to semantic distortion, cognitive immaturity, social conformity, deception, and limited literacy (McDermott et al., 1995). These problems lead to invalid estimates of behavior. Although teachers are not perfect informants they do tend to provide a more consistent evaluation (McDermott et al., 1995; Brandon, Kehle, Jenson, & Clark, 1990). Teachers are also able to benefit from

comparing the target child to other children and across varied social situations (McDermott et al., 1995). In sum, teachers tend to provide a more reliable and educated rating of a child's behavior than peers, parents, or the child themselves when completing a behavior rating scale.

### PRESCHOOL AND KINDERGARTEN BEHAVIOR SCALES (PKBS)

The Preschool and Kindergarten Behavior Scales (PKBS) is a 76 item behavior rating scale designed to evaluate social skills and problem behaviors in preschool and kindergarten aged children ranging from three to six years of age. It takes approximately eight to twelve minutes to complete.

The PKBS was developed to assess children in a variety of settings by a variety of behavioral informants. It can be completed by a parent, teacher, or any other adult who knows the child well enough to rate them. The rater should have observed the child for at least three months prior to the completion of the scale and should base the responses on the scale on the entire three-month observation period (Merrell, 1994)

The PKBS was developed for several purposes. First, it can be used as a screening tool to identify preschool and kindergarten aged children who are at risk of developing serious behavioral, social, and emotional problems. When used as a part of a multi-axial assessment battery, the PKBS can be used to formally identify and classify children with severe behavioral and emotional problems (Merrell, 1994). A third use of the PKBS is developing appropriate interventions by assessing social skills deficits and/or problem behaviors (Merrell, 1994). Finally the PKBS can be used for research on the developing social-behavioral patterns for young children (Merrell, 1994).

The development of children's behavior can be conceptualized along two dimensions—social competence and problem behaviors. Within these dimensions, research suggests that behaviors tend to aggregate into related clusters. Within social skills domain, children entering school make two major types of social adjustments—peer related and adult related. Behavioral and emotional disorders (psychopathology) can be divided into two dimensions—internalizing and externalizing (Merrell, 1994). The PKBS was constructed and organized to measure these dimensions of early childhood behavioral development (Merrell, 1994). The PKBS is comprised of two separate major scales—Social Skills and Problem Behaviors. These two scales contain 34 and 42 items respectively. They are comprised of several empirically derived subscales which are used for the identification of specific subdomains of social skills and problem behaviors. The items comprising the Social Skills Scale (Scale A) were designed to reflect peer related and adult related forms of social adjustment. The items in the Problem Behavior Scale (Scale B) were designed to reflect both internalizing and externalizing forms of problem behavior.

The PKBS is a norm-referenced, standardized test, which was developed using a norm sample of 2,855 children from 16 states representative of four United States geographical regions. The sample was roughly comparable to the United States population in terms of gender, ethnicity, and social economic status (Merrell, 1994).

The Social Skills Scale (Scale A) contains 34 items that describe adaptive or positive behaviors that will likely lead to positive personal and social outcomes. The items in this scale are rated on a four-point likert scale on which 0=Never, 1=Rarely,

2=Sometimes, 3=Often. These 34 items are divided into three empirically derived subscales.

Subscale A1 (Social Cooperation) contains twelve items describing behaviors and characteristics deemed important in following instructions given by adults, cooperating and compromising with peers, and showing appropriate self-restraint. Although the items on this subscale appear to be linked to both peer and adult related forms of social adjustment, they are likely more strongly connected to adult related social adjustment because most items involve compliance to structure and regulation typically imposed by an adult such as parents, preschool teachers, and day care providers.

Subscale A2 (Social Interaction) is comprised of eleven items reflecting behaviors and characteristics considered important in gaining and maintaining acceptance and friendship. The items on this subtest appear to be linked primarily to peer related social adjustment, but several of the items involve appropriate social interactions with adults

Subscale A3 (Social Independence) contains eleven items that reflect behavior and characteristics considered important in order to achieve social independence within a peer group. The skills measured in this group are primarily related to the peer-related form of social adjustment. Skills measured in this subscale involve the ability to separate appropriately from an adult caregiver and showing appropriate confidence and assertiveness in interactions with peers.

Scale B is the Problem Behavior scale. This scale includes 42 items, which describe a variety of problem behaviors often seen in the early childhood/preschool population. These items are also rated using the same four-point likert scale described above for Scale A. The items on Scale B are divided into five empirically derived narrow-band scales and

two empirically derived broad-band scales. The two broad-band scales are based upon the division of problem behavior into internalizing and externalizing behaviors. The externalizing problem behavior scales are Self-Centered/Explosive, Attention Problems/Overactive, and Antisocial/Aggressive. The Social Withdrawal and Anxiety/Somatic Problems Subscales are considered to be internalizing problem behaviors.

Subscale B1 (Self-Centered/Explosive) contains eleven items which describe volatile, inconsiderate, and unpredictable behaviors. High scores on this subtest may indicate children who could be described as oppositional defiant, emotionally and behaviorally variable, and unpredictable in temperament.

The Subscale B2 (Attention Problems/Overactive) scale contains eight items that indicate impulsive, restless, fidgety, noisy, and overactive behaviors. Children who are identified as having Attention-Deficit Hyperactivity Disorder usually obtain a high score on the subscale.

Subscale B3 (Antisocial/Aggressive) contains items that describe behaviors involving intimidation and harm to others. High scores on this subtest tend to be obtained by children who are disliked and/or avoided by other children because of their harmful behavior with peers.

Subscale B4 (Social Withdrawal) contains items that describe behaviors such as avoidance and withdrawal from other children as well as excessive unhappiness. High scores on this scale are often obtained by children who are avoided by other children because of their quiet and withdrawn behavior.

Subscale B5 (Anxiety/Somatic Problems) describes behaviors that indicate tense, fearful, and anxious feelings. These can also be accompanied by somatic problems including stomachaches, pain, and sickness with no physical cause. Children with high ratings on this subscale tend to have difficulty separating from parents and caregivers, are fearful, and may internalize these characteristics into physical problems.

Substantial evidence was provided for the psychometric and technical properties of the PKBS. Several forms of test reliability were reported in the Manual. The internal consistency of the PKBS is strong providing low Standard Errors of Measurement. The test-retest reliability was considered relatively strong by test makers. This seemed to indicate that behavior ratings vary over time, but remain somewhat constant within raters. The interrater reliability was considered weak to moderate. These findings are consistent with other research in that source and setting variance influence behavior ratings substantially. Strong evidence was presented to support the content and construct validity of the PKBS. This instrument appears to be clinically useful and statistically sound. Evidence showed that the PKBS ratings were consistent with the criterion for special education classification.

#### ADJUSTMENT SCALES FOR CHILDREN AND ADOLESCENTS (ASCA)

The Adjustment Scales for Children and Adolescents (ASCA) is a 156 item rating scale used for objective behavioral assessment in children ages five through seventeen (k-12). It takes approximately ten to twenty minutes to complete and is completed by the youth's classroom teacher. The teacher must have observed the child over a minimum of 40 to 50 days. It is important for the teacher to have observed the youth in several situations, including during instruction, under questioning, during independent work, and



when organized and informal recreation is taking place. It can be helpful if the teacher is familiar with the ASCA and its content at the beginning of the observation period (McDermott, 1994). This will help the teacher to observe the behaviors that are important and subsequently, make the ratings more meaningful. For students who change classes (i.e. junior high and high school students) it is usually best to have the ASCA completed by the homeroom teacher or another teacher who observes the youth daily. If it is believed that the information obtained by a teacher is not representative of the youth's day-to-day behavior, another teacher should complete an ASCA independently (McDermott, 1994). It is not recommended to combine the results of different teacher's ratings, but rather compare them. If the results are similar, this can be used as a confirmation of the results. If they are different, it could suggest the student's behavior varies from one class to another or one of the teachers has made an error.

The format of the ASCA is different from most other rating scales. Rather than presenting a list of problem behaviors or symptoms that infer psychopathology based on frequency of the occurrence or intensity rating of the behavior, the ASCA requires the rater to indicate which specific behaviors are typical in particular circumstances. The ASCA does this by presenting 156 behavioral descriptions which refer to 29 specific social, recreational, or learning situations in which the youth encounters authority, same-aged-peers, smaller or weaker youths, and various tasks. The teacher reads the situation, then indicates which behavioral descriptions best represent the youth's behavior over the prior two month observation period. The teacher can indicate one, more than one, or none of the descriptions.



The ASCA was standardized using a sample of 1,400 children which is representative of noninstitutionalized youths aged five through seventeen-years who attended schools in the United States at the beginning of the 1990 decade (McDermott, 1994). The sample was developed and stratified according the 1988-1990 U.S. Census in terms of age, gender, race/ethnicity, parent education, family structure, national region, community size, and handicapping condition. The sample included 700 females and 700 males with an average of 108 youths at each one-year age and grade interval.

The ASCA contains six Core Syndromes and two Supplementary Syndromes. The six Core Syndromes are identifiable and reliable across all ages, gender, and different racial/ethnic groups. The Attention Deficit Hyperactive syndrome contains nineteen items that indicate inattentive, attention seeking, or restless behavior. The Solitary Aggressive (Provocative) Core Syndrome is measured by thirteen items which depict intimidating and overtly confrontive behavior. The Solitary Aggressive (Impulsive) syndrome contains nine items which describe impulse or habit-driven offenses. The Oppositional Defiant syndrome contains twelve items which describe irritable, often covert, defiance and manipulation. The Diffident syndrome contains thirteen items that describe timid and fearful behaviors. The Avoidant syndrome is comprised of ten items that describe unusually withdrawn, aloof, and uncommunicative behavior.

The Core Syndromes are divided into two empirically derived global scales—Overactivity and Underactivity. Overactivity is comprised of the Attention Deficit Hyperactive, Solitary Aggressive (Provocative), Solitary Aggressive (Impulsive), and Oppositional Defiant Core Syndromes and is computed by adding the raw scores of these

syndromes. Underactivity is comprised of the Diffident and Avoidant Core Syndromes and is computed the same way.

There are also two Supplementary Syndromes. These are not applicable to all ages and genders of the population for which the ASCA is used. The Delinquent syndrome is applicable to the entire population except for females under the age of twelve. This syndrome contains ten items that describe individual or group activities that involve such things as alcohol, drugs, weapons, or property destruction.

The other Supplementary Syndrome is Lethargic (Hypoactive). This syndrome is only appropriate for children (male and female) who are under the age of twelve. This syndrome contains eleven items which describe a loss of energy or motivation, apathy (possibly depression), and slowness.

Scores on the ASCA are interpreted in three ways. The first of these is the cut-score method. This method simply involves examining the  $\bar{X}$  scores derived from the raw scores of the syndromes. The method involves a rule which describes the adjustment in terms of the elevation of scores. A score below 60 is considered "Adjusted," scores between 60 and 66 are considered "At Risk," and any score greater than 67 (95<sup>th</sup> percentile) indicates "Maladjustment." The second method of interpretation is the syndromic profile method. To use this method, the scores from the ASCA core syndromes are combined to form a profile. This profile is then compared to the profiles obtained in cluster analyses of the standardization sample and listed in the manual to decide which profile best matches the profile of the youth. To find which profile is the best match, the scores obtained on the ASCA are subtracted from the profile, squared, and summed to form the generalized distance score. The profile which results in the

smallest generalized distance score is the profile which is the best match for the youth. The final way to interpret the scores is through discriminant classification interpretation. This interpretation involves applying the core syndromes in discriminant function regression equations to classify a youth as more closely resembling the population of socially/emotionally normal or disturbed youths. Two approaches are possible—linear and quadratic. The linear is slightly less accurate, but the quadratic is more complicated. Formulae needed to apply this method are provided in the ASCA Manual.

According to the Manual The technical properties of the ASCA have been found to be adequate. Several forms of reliability were examined and shown to be satisfactory. Assessments of internal consistency, inter-observer agreement, and test-retest reliability found that the ASCA's core syndromes provide stable and congruent observations. Also, the supplementary syndromes were found to have considerable reliability when applied to the subgroups intended. Convergent validity was examined comparing the ASCA to several leading measures of problem behavior. The evidence from these comparisons demonstrated expected relationships and overlap between the ASCA and other measures. Discriminant validity of the ASCA was also examined. Evidence from these studies indicate that the ASCA can accurately detect social and emotional problems among youths, and that ASCA's proficiency sustains whether variables such as age, gender, or race are held constant or whether application is confined to adolescents or younger youths, to males or to females, or to White or African American youths. The accuracy tends to remain in the vicinity of 80%, which is well beyond chance.

Since the PKBS and the ASCA are relatively new rating scales, limited literature is available regarding these scales. These articles do, however, provide research that supports the use of these two scales.

The ASCA and PKBS are both behavior rating scales which can be used to rate the behavior of five and six year-old children. They are similar in that they measure problem behaviors (psychopathology) for this age group. Similarities include problem behavior subscales of the PKBS are comparable to core syndromes of the ASCA. The question of whether the subscales and core syndromes that are similar for these two rating scales result in similar scores for 5 and 6 year old children has not yet been examined by researchers.

## REVIEW OF LITERATURE

Construct validity of the PKBS was examined (Merrell, 1995) by comparing it to the preschool level parent rating form of the Social Skills Rating System (SSRS; Gresham & Elliott, 1990), the teacher report form of the Matson Evaluation of Social Skills with Youngsters (MESSY; Matson, Rotari, & Helsel, 1983), the 39 item version of the Conners Teacher Rating Scale (CTRS-39; Conners, 1990), and the School Social Behavior Scales (SSBS; Merrell, 1993a). These comparisons of the PKBS to four established rating scales provided substantial evidence for the construct validity of the PKBS. Evidence for convergent construct validity of the Social Skills scale of the PKBS was illustrated by the moderate to strong relationship between it and the social skills scores from the SSRS with coefficients ranging from .32 to .76. The strongest relationship that was found was between the total (Global) social skills scores of the two measures ( $r = .76$ ). The coefficients for the relationships between the PKBS and the SSRS in the area of problem behaviors ranged from .25 to .83. The strongest relationship ( $r = .83$ ) was found between for the total (Global) scores of the two measures. The relationships between the subscale scores of the same general domains were stronger than for the different domains. Negative correlations were found between the social skills and problem behavior scales of the PKBS and the SSRS and ranged from -.10 to -.66.

Validity coefficients were also obtained for the PKBS and the MESSY. Strong correlations were found between the social skills scales of the scores ( $r = .62$  to  $.85$ ). Correlations between the problem behavior scores were weak to strong ( $r = .22$  to  $.72$ ). Correlations were very strong between the PKBS total scores and the MESSY factors

which were similar. The correlation between the PKBS Social Skills total and the MESSY Appropriate Social Skills factor was .84. The correlation between the Problem Behavior total for the PKBS and the Inappropriate Assertiveness/Impulsivity factor was .64. Weak to moderate correlations were found between opposing constructs ( $r = .10$  to .56).

The PKBS and CTRS-39 were also compared and validity coefficients were generated. Overall, very strong correlations were found between scales appearing to measure similar constructs. The Externalizing problem score from the PKBS was highly correlated with the scales from the CTRS-39 scales that were described as externalizing— $r = .85$  with the Hyperactivity,  $r = .87$  with conduct problems, and  $r = .85$  with the Hyperactivity Index. The Internalizing Problems from the PKBS correlated .78 with Emotional Indulgent Scale from the CTRS-39 and .61 with Anxious/Passive Scale. PKBS Social Skills scores and the CTRS-39 problem scores were also compared. All of the correlations were negative ranging from  $-.08$  to  $-.83$ .

Finally, the PKBS was compared to the SSBS. The correlations between the social skills scores of the PKBS and the SSBS were strong. The median correlation was  $r = .68$ , and the correlation of the total scores of the scales was .86. The problem behavior scores resulted in weaker and more varied correlations. Antisocial behavior from the SSBS correlated strongly with the externalizing problem scores (.75 to .83) but not highly with internalizing problem scores (.35 to .45). The correlations between social skills and problem behavior scores were negative and variable ranging from  $r = -.19$  to  $r = -.77$ .

Convergent validity for the problem behavior scales was evident due to the strong relationships between the internalizing and externalizing scores and scores that

were comparable from the other four measures. Divergent validity is also present in the negative relationships that were found between the social skills scores on the PKBS and the problems behavior scores of the criterion measure, and between the PKBS problem behavior scores and the social skills scores of the SSRS, MESSY, and SSBS. These findings provide evidence for the construct validity of the PKBS.

Merrell (1996) discussed the development and advantages of the PKBS and suggested there was a distinct need for a psychometrically sound scale to rate the behavior of preschool and kindergarten aged children. Most of the available instruments for this age range were simply downward extensions of scales for older children and may not have adequately represented the behaviors of children in the preschool and kindergarten age range. The PKBS was specifically designed for children in this age range. The PKBS was standardized with a sample of 2,855 child ratings. This sample included children from several states and geographic areas and was similar to the U.S. population in terms of race/ethnicity, socioeconomic status, and disability status. A factor analysis indicated both scales, social skills and problem behavior, have a stable factor structure. A varimax rotation was completed for the Social Skills scale and produced three factors. The first of these consisted of 12 items and accounted for 40% of the variance and was labeled Social Cooperation. The second was labeled Social Interaction and accounted for 10% of the variance. This factor contained 11 items. The third factor consisted of 11 items and accounted for 4% of the variance. This factor was labeled Social Independence. The factor structure of the Problem Behavior Scale was more complex. Both broad-band and narrow-band factors were produced. Varimax rotation on the problem behavior items, which resulted in two factors, produced the best overall factor solution. This two factor

solution as very consistent in producing the internalizing and externalizing factors. The first factor, Externalizing Problems, accounted for 39% of the variance and contained 27 items. The second factor (Internalizing Problems) contained 15 items and accounted for 7% of the variance. Three items on the Problem Behavior scale were dropped after the factor analysis because they had poor specificity and weak factor loadings on both factors. Item 36, "Is overly sensitive to criticism or scolding," loaded onto each of the broad band scales at .40 or higher. It was assigned to the Internalizing Problems factor because the factor loading was substantially higher there. The two broad band scales resulted in a large number of items that represented a wide variety of behavior problems, so they were analyzed separately in order to determine if any clinically relevant narrow-band factors could be developed. A varimax rotation of the Externalizing Problems items resulted in three narrow-band factors. The first was labeled Self-Centered/Explosive, contained 11 items, and accounted for 53% of the variance. The second factor, which was labeled Attention Problems/Overactive, accounted for 6% of the variance and contained eight items. The third accounted for 5% of the variance and contained eight items. This factor was labeled Antisocial/Aggressive. A varimax rotation was also completed for the Internalizing Problems items and produced two narrow-band factors. The first of these was labeled Social Withdrawal, accounted for 42% of the variance, and contained eight items. The second was labeled Anxiety/Somatic Problems, accounted for 9% of the variance, and contained eight items.

According to the reliability studies, the PKBS has adequate to strong stability (Merrell, 1996). Three-week and three-month test retest coefficients were examined in



order to estimate the stability of the PKBS. The stability coefficients for the three-week interval ranged from .58 to .87, and for the three-month interval ranged from .36 to .78.

Evidence of content validity and two forms of construct validity was found by exploring within scale relationships (Merrell, 1996). Pearson product-moment correlations were completed among the PKBS subscales and total scores. The average coefficient for the Social Skills scores was .76, and the average coefficient for the Problem Behavior scores was .73. The lowest correlations were found between the externalizing and internalizing domains. In sum, the PKBS seems to be a psychometrically sound rating scale for screening and assessing social skills and social emotional problems in preschool and kindergarten aged children.

Jentzsch and Merrell (1996), examined the convergent and discriminate validity of the PKBS with 94 kindergarten students. This was done by comparing scores on the PKBS with scores on the Scale of Social Competence and School Adjustment (SSCA; Walker & McConnell, 1995) and a shortened version of Achenbach's Teacher's Report Form (TRF; Achenbach, 1991). When the PKBS was compared to the SSCA coefficients ranged from moderate to strong. Many coefficients were significant at  $p < .001$  level, however, a few coefficients were significant at  $p < .01$  level. The lowest of the coefficients was between the Social Cooperation subscale and the Peer-Preferred Social Behavior on the SSCA (.46), and the highest coefficient was between PKBS Social Skills Total and the SSCA Total Score (.88). The Problem Behavior Scale resulted in coefficients ranging from -.28 to -.80. The weakest coefficient was between Anxiety/Somatic Problems of the PKBS and School Adjustment Behavior subscale of the SSCA (-.28). The strongest of the negative coefficients was between the PKBS Problem Behavior Total and the SSCA

Teacher-Preferred Social Behavior subscale of the SSCSA (-.80) The PKBS was also compared to the TRF. The range of coefficients was from weak to strong. Again, many of the coefficients were significant at the level  $p < .001$ , some were significant at  $p < .01$  and a few were not statistically significant. The lowest coefficient on the Social Skills scale of the PKBS was between the PKBS Social Interaction subscale and the Externalizing scale on the SSCSA (-.21). The PKBS Social Cooperation Subscale and the TRF Total score had the strongest coefficient (-.78). The coefficient was also -.78 between the Social Independence subscale and the Internalizing scale on the TRF. The Problem Behavior scale coefficients ranged from .06 to .88. The PKBS Externalizing Problem scale was highly correlated with the TRF Externalizing scale ( $r = .94, p < .001$ ). The PKBS Internalizing Problems scale was highly correlated with the TRF Internalizing Scale ( $r = .76, p < .001$ ). Finally, the PKBS Problem Behavior Total was highly correlated with the TRF Total Score ( $r = .93, p < .001$ ).

In addition, the PKBS was also examined in regard to sensitivity to group differences. It was found that overall, 89.36% of the “grouped” cases were correctly classified. Overall, 91.7% of the internalizing group, 82.6% of the externalizing group, and 91.5% of the comparison group were classified correctly. The results of this study illustrate both convergent and discriminate validity of the two scales on the PKBS with the scales to which they were compared. The coefficients between the PKBS and the SSCA indicated both convergent and discriminant construct validity. Convergent and discriminant validity were also demonstrated by the comparisons of the PKBS and the TRF. Because the SSCA and the TRF are both psychometrically sound instruments, this adds to the construct validity of the PKBS. The study also illustrated that the PKBS was

sensitive to differences between teacher identified behaviorally at-risk students and a group of comparison children. It appeared to discriminate between an internalizing and externalizing group. This could be helpful information when developing appropriate interventions for children who may benefit from behavioral intervention. This study provides evidence for the convergent and discriminant validity of the PKBS as well as supports it for identifying young children who are behaviorally at-risk.

In sum, the research on the PKBS indicates, first, because of the lack of behavior rating scales for preschool and kindergarten-aged children, this was a much needed addition to the wide range of behavior rating scales available. The articles also indicate the psychometric properties of the PKBS appear adequate. In the studies that examined the construct validity by comparing the PKBS to several reputable rating scales, it was found that appropriate convergent and discriminant validity were present. However, more studies are needed.

More studies have been conducted with the Adjustment Scales for Children and Adolescents. McDermott (1993, 1994), presented the design, standardization, and validation of the ASCA. The ASCA was standardized on a sample of 1,400 students ranging from ages five through seventeen years. The sample is representative of the United States population in terms of age, gender, race/ethnicity, parent education, national region, community size, and handicapping condition based upon the 1988-1989 U.S. Census. Rather than depending upon the teacher's estimates of the numbers of times the behavior occurs and the severity of the behavior, the ASCA defines pathology through multisituational occurrences. The format of the ASCA allows the teacher to indicate

which specific behaviors are typical in the given circumstances. Concurrent and discriminant validity were demonstrated for the ASCA's core syndromes.

McDermott (1995) examined the extent to which age, gender, ethnicity, social class, national region, community size, and their interactions account for variation in a child's cognitive ability, academic achievement, and social adjustment. The normative sample of the ASCA was used for this study and 1,200 of these children were also assessed using the Differential Ability Scales (DAS; Elliot, 1990) in the conorming of the two scales. It was found that 18.9% of ability variation could be attributed to social class and ethnicity. However, only 5.5% of the variability in adjustment was related to demographic factors, specifically gender and age. Although the variation in ability seemed to be associated with social advantage and ethnicity, advancing age alone could account for up to 60% of the variance in ability. The variation in adjustment was trivial. This helps to show that separate norms are not necessary for children who differ demographically.

McDermott and Weiss (1995), utilized the normative sample of the ASCA to examine the different behavior styles in children as well as the prevalence of these styles. The prevalence rates indicated that 78.6% of children in this national sample were adjusted, 16.2% at risk, and 5.2% seriously maladjusted. From this information, twenty-two profile types were formed for the ASCA ranging from Adjusted to Maladjusted through the use of cluster analyses. Twelve of these are adequate or marginal types and ten are at-risk or maladjusted. This supports the hypothesis that adjustment and maladjustment fall within the same continuum. The information in this study also revealed trends for gender and developmental prevalence and covariation with other

factors including ability, achievement, handicaps, and physical morbidity. More research is needed however, to verify these results.

McDermott et al., (1995) examined the ASCA's sensitivity, specificity, and overall accuracy in detecting emotional disturbance. The ASCA was first administered to 150 nondisabled youths then to 150 youths who were matched for gender, age, race, and grade level, but were classified as emotionally disturbed. The evidence from this study indicates ASCA accurately detects emotional disturbance among children regardless of developmental level or gender and with equivalent accuracy for African American and Caucasian youths. The study also showed the ASCA was able to distinguish children regarded as emotionally disturbed from those considered to have a learning disability, speech/communication disability, or gifted. Overall correct classification was measured at 80% level beyond chance. The ASCA's positive predictive power was 80.6%. This study concluded that the ASCA is a valid and specific instrument designed to provide information on youth psychopathology. Better results may be obtained using the discriminate classification procedure that weighs all six core syndromes when determining SED classification.

McDermott (1996) also examined the developmental and gender prevalence of maladjustment in youths. The standardization of the ASCA was completed to match the U.S. population by age, sex, ethnicity, parent education, family structure, national region, community size, and handicapping condition. The maladjusted portion of this group of youths was the group that was used for the study in this article. It was found that males outnumbered females for most types of maladjustment, including Attention-Deficit Hyperactive, both Provocative and Impulsive forms of Solitary Aggressive, Oppositional

Defiant, Conduct Disorder, and Avoidant Disorders. Patterns of reduced behavior excess and increased avoidant behavior were indicated as age increased.

McDermott and Schaefer (1996), investigated the 1,400 youths that make up the standardization sample of the ASCA to find base rates for specific problem behaviors observed by classroom teachers. The prevalence of the 20 most common behaviors and the 20 most rare behaviors was calculated for each demographic subgroup. It was shown that on the ASCA 50% of items endorsed were positive items and less than 30% were problem indicators. The relationship between individual behavior and demographics were shown to be significant. It was found that preadolescents more frequently engaged in behaviors such as ruining school work, attacking peers, and more attention seeking behaviors than adolescents did. Adolescents tended to be more avoidant than preadolescents. Males were found to engage in provocative behaviors including sexual offensive behaviors and mistreating weaker students. Males were indicated to dominate the most common behaviors like ADHD and refusal or reluctance to speak. Girls, on the other hand, were found to dominate in only Diffident behaviors and lack of participation. Children whose parents had low education levels were noted to have greater behavior problems including carrying a deadly weapon and drug abuse. It was found that rare and problem behaviors tended to remain consistent and stable across demographic variables. The results of this investigation indicated that, based on assessments completed by teachers, rank precedence of problem behaviors remains significantly stable across demographic strata. This helps demonstrate that the ASCA surface syndromes remain continuous and reliable across demographics, and that the accuracy of the ASCA for

detecting social and emotional disturbance across developmental level, sex, and ethnicity is equal.

McDermott and Spencer (1997) examined the relative base rates of common forms of youth psychopathology among different races and different social classes using the normative sample of the ASCA, which represents the population of all noninstitutionalized youths ages five through seventeen years. Race was measured by the indication of the subject as one of four mutually exclusive categories—White, African American, Hispanic, and Other. Social class was determined by the number of years of education the youths' parents had received. Psychopathology was measured using the ASCA. Scores which resulted in a T score equal to or greater than 60 were used as a cut score because it was found to be generally suitable as clinical criterion in other research. It was indicated by this study that youth psychopathology tends to match the distribution of race and social classes among the U.S. population with the exception of on the Diffident syndrome Hispanics tended to be overly represented when compared to African Americans. Also, a higher portion of African American youths displayed impulsive/aggressive behaviors. Children of less educated families were rated more Diffident and less Oppositional Defiant and Impulsive. White children whose parents had no secondary education showed decreased aggression. White youths with lower SES were over represented in the area of Underactivity. White youths whose parents had some secondary education tended to display more solitary aggression than expected, but this was not the case for White youths whose parents had the highest degree of education. It was found that the amount of the parent's education does not result in a decrease of youth psychopathology for non-White youths as much as for White youths.



In sum, the studies regarding the ASCA indicate, first, that the ASCA validly detects emotional disturbances in youths regardless of developmental level or gender with equal accuracy for African American and White Youths. It can also distinguish emotionally disturbed youths from youths with learning disabilities, speech communication disorders, and gifted as well as normal youths. Also, more males than females are maladjusted including Attention-Deficit Hyperactive, Provocative and Impulsive forms of Solitary Aggressive, Oppositional Defiant, Conduct Disorder, and Avoidant. The distribution of pathology tended to correlate with the representation of racial groups in the population. Behavior excess decreased and avoidant behavior increased as age increased.

The Preschool and Kindergarten Behavior Scales and the Adjustment Scales for Children and Adolescents are two behavior rating scales that measure similar constructs. Because they are new measures, additional validation research is necessary. In this study various forms of construct validity of the PKBS and ASCA were examined. Convergent and divergent validity were examined by correlating scores from the PKBS and the ASCA. Comparisons were made between all subscales and core syndromes of the two scales in order to examine the strength of the correlations between the scales. Specific comparisons were also made between the Self-Centered/Explosive subscale of the PKBS and Solitary Aggressive (Impulsive), Solitary Aggressive (Provocative), and Oppositional Defiant of the ASCA. The Attention Problems/Overactive subscale of the PKBS was compared to Attention Deficit/Hyperactive of the ASCA. The Antisocial/Aggressive subtest of the PKBS was compared to Solitary Aggressive (Provocative), Oppositional Defiant, and Delinquent of the ASCA. The Social Withdrawal subscale of the PKBS was compared to Lethargic and Diffident of the ASCA. The final problem behavior subscale



of the PKBS, Anxiety/Somatic Problems, was compared to the Lethargic and Avoidant syndromes of the ASCA. The Overactivity Scale of the ASCA was compared to the Externalizing Scale of the PKBS, the Underactivity Scale of the ASCA was compared to the Internalizing Scale of the PKBS.

## Chapter II

### METHOD

#### Participants

The participants in this study were 123 kindergarten and first-grade students who were chosen randomly by their classroom teachers ( $n=38$ ) who volunteered to complete the ASCA and PKBS. Teachers were to choose one girl and one boy or two girls and two boys. Students were comprised of 48% males ( $\underline{n}=59$ ) and 52% females ( $\underline{n}=64$ ). Of the subjects 73.2% were enrolled in kindergarten ( $\underline{n}=90$ ), 23.6% were enrolled in the first grade ( $\underline{n}=29$ ), and in 3.3%, grade was not specified ( $\underline{n}=4$ ). The mean age of the subjects was 6.22 years ( $\underline{SD} = .44$ ). Ages ranged from 5.17 years to 6.92 years. The race/ethnicity of the students was identified as 48.8% Caucasian ( $\underline{n} = 60$ ), .8% Black/African American ( $\underline{n} = 1$ ), .8% Asian/Pacific Islander ( $\underline{n} = 1$ ), .8% Hispanic ( $n = 1$ ), and 48.8% not indicated ( $\underline{n} = 60$ ). Of the subjects, 87% were not identified to have a disability ( $\underline{n}=107$ ), .8% were noted to be diagnosed with ADHD ( $\underline{n}=1$ ), 8.1% were noted to receive speech services ( $\underline{n}=10$ ), .8% were said to be labeled as Developmentally Delayed and receive speech services ( $\underline{n}=1$ ), and 3.3% were indicated to receive Title I services ( $\underline{n}=4$ ). The teachers were from schools in rural south eastern Illinois. Teachers were given a copy of a reproducible alphabet book for completing the forms for two students and were given a chance to win a fifty-dollar gift certificate along with the book for completing the form for four students.

### Procedure

The teachers were asked to observe their classes for at least forty school days. After this time period they were asked to complete a PKBS and ASCA for randomly selected children in their class who were five or six years of age. Each teacher was given the option to select either two girls and two boys or one girl and one boy from their classes. The rating scales were placed in alternating order for the subjects in order to control for a possible order effect. The rating forms were then scored according to the respective manuals and statistical examination of the results were completed to examine the convergent and discriminant validity.

### Data Analysis

Because  $T$  scores were not provided in the Manual of the PKBS, raw scores were converted to  $T$  scores using the  $M$  and  $SD$  for 5 and 6 year olds which were obtained from the standardization data as provided by Dr. Kenneth Merrell. Pearson product-moment correlation coefficients were used to examine the pattern of convergent and divergent validity for the ASCA core syndromes and the PKBS subscales as well as the global/broad band scales of the two instruments. Two-tailed dependent  $t$ -tests were also used to examine the level of convergent validity between the ASCA and PKBS syndromes and global/broad band scores. Specific comparisons included Self-Centered/Explosive subscale of the PKBS to Solitary Aggressive (Impulsive), Solitary Aggressive (Provocative), and Oppositional Defiant syndromes of the ASCA. The Attention Problems/Overactive subscale of the PKBS was compared to Attention Deficit/Hyperactive syndrome of the ASCA. The Antisocial/Aggressive subtest of the

PKBS was compared to Solitary Aggressive (Provocative), Oppositional Defiant, and Delinquent syndromes of the ASCA. The Social Withdrawal subscale of the PKBS was compared to Lethargic and Diffident syndromes of the ASCA. The final problem behavior subscale of the PKBS, Anxiety/Somatic Problems, was compared to the Lethargic and Avoidant syndromes of the ASCA. The Overactivity Scale of the ASCA was compared to the Externalizing Scale of the PKBS. The Underactivity Scale of the ASCA was compared to the Internalizing Scale of the PKBS.

## Chapter III

## RESULTS

Table 1 presents Pearson product-moment correlation coefficients for the six ASCA core syndromes and two supplementary syndromes with the five subscales of the PKBS as well as the two broad band scales of the PKBS. Comparisons ranged from highly negative to highly positive (-.80 to .84), in the expected direction depending upon the comparison.

The ASCA Attention-Deficit Hyperactive core syndrome was very highly correlated with the PKBS Attention Problems/Overactive scale ( $r = .84, p < .001$ ). The means and standard deviations for the ASCA and PKBS are presented in Table 2. A significant difference was found between the ASCA Attention-Deficit Hyperactive ( $M = 53.84, SD = 11.96$ ) and the PKBS Attention Problem/Overactive ( $M = 49.57, SD = 12.33$ )  $t(122) = 6.83, p < .001, \eta^2 = .28$ . The ASCA Solitary Aggressive (Provocative) syndrome was significantly correlated with the PKBS Antisocial/Aggressive scale ( $r = .67, p < .001$ ). There was a significant difference between the mean of the ASCA Solitary Aggressive (Provocative) core syndrome ( $M = 54.78, SD = 11.94$ ) and the mean of the PKBS Antisocial Aggressive scale ( $M = 50.45, SD = 12.40$ )  $t(122) = 4.79, p < .001, \eta^2 = .16$ . The ASCA Solitary Aggressive (Provocative) core syndrome was also compared to the PKBS Self-Centered/Explosive and found to be moderately and significantly correlated ( $r = .66, p < .001$ ). Comparison of the means of the ASCA Solitary Aggressive (Provocative) core syndrome ( $M = 54.73, SD = 11.94$ ) and the PKBS Self-Centered/Explosive scale ( $M = 46.51, SD = 10.79$ ) indicated that there was a significant

difference,  $t(122) = 9.66, p < .001, \eta^2 = .43$ . The ASCA Solitary Aggressive (Impulsive) core syndrome was compared to the PKBS Antisocial/Aggressive scale and found to be significantly correlated ( $r = .68, p < .001$ ). Comparisons of the mean of the ASCA Solitary Aggressive (Impulsive) core syndrome ( $M = 51.50, SD = 9.51$ ) to the mean of the PKBS Antisocial/Aggressive scale ( $M = 50.45, SD = 12.40$ ) found no significant difference,  $t(122) = 1.28, p > .05, \eta^2 = .01$ . The ASCA Solitary Aggressive (Impulsive) syndrome was also compared to the PKBS Self-Centered/Explosive scale and resulted in a significant correlation ( $r = .48, p < .001$ ). Comparison of the mean of the ASCA Solitary Aggressive (Impulsive) core syndrome ( $M = 51.50, SD = 9.51$ ) to the PKBS Self-Centered/Explosive scale ( $M = 46.61, SD = 10.79$ ) produced a significant difference,  $t(122) = 5.31, p < .001, \eta^2 = .19$ . The ASCA Oppositional Defiant core syndrome was compared to the PKBS Antisocial/Aggressive scale and found to be significantly correlated ( $r = .63, p < .001$ ). The mean of the Oppositional Defiant core syndrome ( $M = 51.40, SD = 10.51$ ) was compared to the mean of the Antisocial/Aggressive scale ( $M = 50.45, SD = 12.40$ ) and no significant difference was found,  $t = 1.05, p > .05, \eta^2 = .00$ . The ASCA Oppositional Defiant core syndrome was also compared to the PKBS Self-Centered/Explosive scale. The correlation was significant ( $r = .68, p < .001$ ) and the mean of the ASCA Oppositional Defiant core syndrome ( $M = 51.40, SD = 10.51$ ) was found to be significantly different than the mean of the PKBS Self-Centered/Explosive scale ( $M = 46.51, SD = 10.79$ ),  $t = 6.34, p < .001, \eta^2 = .25$ . The ASCA Diffident core syndrome was compared to the PKBS Social Withdrawal scale and found to be significantly correlated ( $r = .28, p < .01$ ). The mean of the ASCA Diffident syndrome ( $M = 49.19, SD = 9.84$ ) was compared to the mean of PKBS Social Withdrawal scale ( $M =$

52.65,  $SD = 11.17$ ) and a significant difference was found,  $t = -3.03$ ,  $p < .01$ ,  $\eta^2 = .07$ .

The ASCA Avoidant core syndrome was compared to the PKBS Anxiety/Somatic Problems scale and found to be significant but low ( $r = .28$ ,  $p < .01$ ). The means of the ASCA Avoidant core syndrome ( $M = 47.05$ ,  $SD = 8.97$ ) and the PKBS Anxiety/Somatic Problems scale ( $M = 49.05$ ,  $SD = 9.88$ ) were not found to be significantly different,  $t = -1.97$ ,  $p > .05$ ,  $\eta^2 = .03$ . The ASCA Delinquent supplementary syndrome was compared to the PKBS Antisocial/Aggressive scale and was not found to be significantly correlated ( $r = .26$ ,  $p > .05$ ). The mean of the ASCA Delinquent core syndrome ( $M = 50.68$ ,  $SD = 10.84$ ) was compared to the mean of the PKBS Antisocial/Aggressive scale ( $M = 53.15$ ,  $SD = 13.06$ ) and the difference was not found to be significant,  $t(59) = -1.29$ ,  $p > .05$ ,  $\eta^2 = .01$ . The ASCA Lethargic (Hypoactive) supplementary syndrome was found to be significantly correlated with the PKBS Social Withdrawal Scale ( $r = .53$ ,  $p < .001$ ). The mean difference between the ASCA Lethargic (Hypoactive) supplementary syndrome ( $M = 49.82$ ,  $SD = 9.48$ ) and the PKBS Social Withdrawal scale ( $M = 52.65$ ,  $SD = 11.17$ ) was found to be significant,  $t(123) = -3.10$ ,  $p < .01$ ,  $\eta^2 = .07$ . The ASCA Lethargic (Hypoactive) supplementary syndrome was also compared to the PKBS Anxiety/Somatic Problems and found to be significantly correlated ( $r = .43$ ,  $p < .001$ ). The mean of the ASCA Lethargic (Hypoactive) supplementary syndrome ( $M = 49.82$ ,  $SD = 9.48$ ) was compared to the mean of the PKBS Anxiety/Somatic Problems scale ( $M = 49.05$ ,  $SD = 9.88$ ). The mean difference was not found to be significant,  $t = .83$ ,  $p > .05$ ,  $\eta^2 = .00$ .

Further information on the convergent validity of the two instruments was examined by conducting comparisons of the more global/broad band scales. The ASCA

Overactivity scale was found to be significantly and highly correlated with the Externalizing Problems scale ( $r = .84, p < .001$ ). The mean differences between the ASCA Overactivity Scale ( $M = 54.28, SD = 11.07$ ) and the PKBS Externalizing Problems scale ( $M = 48.45, SD = 12.04$ ) were found to be significant,  $t(123) = 9.86, p < .001, \eta^2 = .44$ . The ASCA Overactivity scale was found to be significantly and highly correlated to the PKBS Problem Behavior Total Score ( $r = .81, p < .001$ ). The mean difference between the ASCA Overactivity scale ( $M = 54.28, SD = 11.07$ ) and the PKBS Total Score ( $M = 49.13, SD = 11.57$ ) was found to be significant,  $t(123) = 8.18, p < .001, \eta^2 = .35$ . The ASCA Underactivity scale was found to be significantly correlated with the PKBS Internalizing Problems scale ( $r = .42, p < .001$ ) and the mean difference between the ASCA Underactivity scale ( $M = 48.14, SD = 10.28$ ) and the PKBS Internalizing Problems scale ( $M = 50.85, SD = 10.70$ ) was found to be significant  $t(123) = -2.65, p < .01, \eta^2 = .05$ . The ASCA Underactivity scale was not found to be significantly correlated with the PKBS Problem Behavior Total Score ( $r = .08, p > .05$ ).

Pearson product-moment correlations between the PKBS Social Cooperation scale and the ASCA Underactivity syndrome and the PKBS Social Cooperation and the ASCA Diffident syndrome were not significant. The ASCA Overactivity Scale was found to be significantly correlated with the PKBS Internalizing Problems scale ( $r = .50, p < .001$ ). The ASCA Underactivity scale was not found to be significantly correlated with the PKBS Externalizing scale ( $r = -.06, p > .05$ ). The remainder of the correlations between Social Skills of the PKBS and the ASCA scales and core syndromes were significant and moderately to highly negative (See Table 1).



## Chapter IV

### Discussion

When examining specific comparisons of interests between the ASCA and the PKBS, evidence of convergent validity was present. Correlations ranged from .50 to .80 for scales which measure similar dimensions. The ASCA Solitary Aggressive (Impulsive) and the Solitary Aggressive (Provocative) core syndromes were moderately correlated with the PKBS Antisocial/Aggressive scale. These correlations would be expected based upon the scale descriptions in their respective manuals. All of these scales involve behaviors that disturb or annoy the children around the child being rated. The ASCA Solitary Aggressive (Impulsive) core syndrome was moderately correlated with the PKBS Attention Problems (Overactive) scale. According to the respective Manuals, these scales are related to impulsive behaviors and a correlation would be expected. A high correlation was also observed between the ASCA Attention-Deficit Hyperactive core syndrome and the PKBS Attention Problems/Overactive scale. Both Manuals describe these scales as measuring inattentive and overactive behaviors. This high correlation was expected because of the similarities in behavioral and item descriptions. The ASCA Oppositional Defiant core syndrome was highly correlated with the Self-Centered/Explosive and the Antisocial/Aggressive scales of the PKBS. Again, the Manuals provide similar descriptions for these scales. The PKBS Self-Centered/Explosive scale was described as involving volatile, inconsiderate, and

unpredictable behaviors. It was indicated that high scores on this scale may indicate children who could be described as oppositional defiant. The PKBS Antisocial/Aggressive scale contains items which involve intimidation and harm to others. This is comparable to the ASCA Oppositional Defiant core syndrome which involves the child exhibiting irritable and covert manipulations. Items include dominating peers in play and being a poor loser which may involve intimidating and harming others. Strong negative correlations were present between the PKBS Social Cooperation scale and the ASCA Attention Deficit/Hyperactivity Solitary Aggressive (Provocative) core syndromes. These moderate negative correlations would be expected because a high score on the PKBS Social Cooperation scale would suggest characteristics deemed important in following instructions given by adults, cooperating and compromising with peers, and showing appropriate self-restraint. These scales clearly measure constructs that are inversely related.

Although the ASCA and PKBS are both relatively new instruments designed to measure youth's behavior, they contain many structural and theoretical differences that could affect the ratings and comparisons. One example of this is the ASCA is not simply a list of behaviors with a Likert scale to complete. It contains positive behavioral indicators as well as items related to school observations which add to the ease of completion. One advantage of the PKBS at this age is that it was written specifically for this age group rather than for older youths also.

Previous research involving the PKBS involving correlations with the PKBS with other instruments such as the Social Skills Rating System (SSRS; Gresham and Elliot,

1990), Matson Evaluation of Social Skills with Youngsters (MESSY; Matson, Rotari, & Helsel, 1983), Conners Teacher Rating Scale (CTRS-39; Conners, 1990), and the School Social Behavior Scales (SSBS; Merrell, 1993a). Ratings varied between the PKBS and these scales. The SSRS social skills correlated  $r = .32$  to  $.76$  with the PKBS social skills. The problem behaviors correlated  $r = .25$  to  $.83$ . Similar results were found in the present study. The PKBS Problem Behavior scores were highly correlated with the scores from similar subscales from the ASCA. Low and negative correlations were found between the Social Skills scales of the PKBS and the scales for the ASCA. The comparison between the MESSY and the PKBS social skills sections resulted in high correlations ranging from  $r = .62$  to  $.85$ . The problem behavior comparisons were not as high as  $r = .22$  to  $.72$ . When the PKBS was compared to the CTRS-39 the correlations between the problem behavior scales were again high ranging from  $r = .61$  to  $.87$ . When the PKBS was compared to the SSBS the social skills correlations resulted in a median correlation of  $r = .68$ .

Previous research comparing the ASCA to other scales such as the Conner's TRS (TRS; Conner's, 1989) and the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983) was presented in the ASCA Manual (McDermott, 1994). The comparison to the CBCL resulted in significant correlations ranging from  $.75$  to  $.92$  for the comparable scales and composites. Comparisons with the TRS resulted in a wide range of correlations ranging from  $r = .18$  to  $.80$ . The expected convergence and divergence were present between the scales. The ASCA was compared to the Differential Ability Scales (DAS; Elliot, 1990). Correlations in this study were low ranging from  $r =$

.01 to .24 which suggests that intelligence and school achievement vary independent of youth psychopathology (McDermott, 1995). The results of the present study appear to adhere to the same patterns previous research involving the two scales. This study also displays convergent validity with moderate to high correlations between similar scales, but also displaying individual characteristics of each scale by very low or near zero correlations between scales which measured different constructs which indicates divergent validity.

Comparisons of some theoretically different scales of the PKBS and ASCA resulted in moderate to high correlations. When the PKBS Internalizing Problems scale was compared to the ASCA Overactive scale the correlation was higher than expected ( $r = .51, p < .001$ ). When examining the intercorrelation of the two scales it was noted that the PKBS Internalizing Problems scale was highly correlated with the PKBS External Problems scale ( $r = .62, p < .001$ ) (See Table 3). This helps to explain the high correlation with the ASCA Overactive scale because the PKBS External Problems scale reports to measure a similar construct. Tables 3 and 4 illustrate greater overlap and higher correlations among the PKBS scales than does the ASCA which suggests the ASCA scales are more independent than the PKBS scales. This lower independence of the PKBS effects the comparisons of the PKBS to the ASCA.

There are limitations in the present study that limit generalizability. First, the sample size is relatively small ( $n=123$ ) particularly with the ASCA supplementary syndrome ( $n=59$ ) of Delinquency and not representative of the general population in terms of race/ethnicity because all raters and most subjects were Caucasian and from a

rural area in south eastern Illinois. An increase in sample size along with a more racially and geographically diverse sample in future studies would allow for greater generalization of the present results.

In sum, the present study provided some evidence of convergent validity for the ASCA core and supplementary syndromes and the PKBS scales. Both instruments appear to be useful for school psychologists for identifying problem behaviors for five and six year-old children. The two scales appear to complement one another when used together to provide a clear picture of the child's overall behavior. Given the high intercorrelations among the PKBS scales and the lower intercorrelations for the ASCA subscales, the ASCA is more highly recommended than the PKBS for assessing psychopathology. Future research needs to focus on predictive validity of the two instruments. For example, what behavior problems rated on the instruments lead to what diagnoses and do the scales provide accurate diagnostic information which supports diagnoses of emotional disturbance? The answers to these questions would help school psychologists and other professionals who need an accurate method for assessing youth problem behavior.

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Table 1.

Pearson product-moment correlation coefficients between the Preschool and Kindergarten Behavior Scales (PKBS) and the Adjustment Scales for Children and Adolescents (ASCA)

PKBS	Adjustment Scales for Children and Adolescents (ASCA)									
	OVR	UNR	ADH	SAP	SAI	OPD	DIF	AVO	DEL	LEH
<u>Social Skills</u>										
SC	-.80***	-.04	-.74***	-.72***	-.57***	-.60***	.07	-.22*	-.42**	-.31**
Sint	-.43***	-.52***	-.35***	-.39***	-.34***	-.42***	-.43***	-.49***	-.43**	-.45***
Sind	-.42***	-.46***	-.39***	-.33***	-.24**	-.31**	-.39***	-.42***	-.49***	-.56***
SS Total	-.59***	-.37***	-.53***	-.51***	-.41***	-.47***	-.28**	-.40***	-.50***	-.49***
<u>Problem Behavior</u>										
SC/E	.78***	-.03	.69***	.66***	.48***	.68***	-.11	.05	.19	.25*
AP/O	.85***	-.05	.84***	.67***	.56***	.52***	-.15	.09	.34**	.30**
A/A	.79***	-.09	.70***	.67***	.68***	.63***	-.19*	.05	.26	.18*
Externalizing Problems	.84***	-.06	.78***	.70***	.59***	.64***	-.15	.07	.27*	.26**
SW	.60***	.40***	.52***	.55***	.34***	.47***	.28**	.43***	.40**	.53***
A/SP	.33***	.37***	.32***	.22*	.16	.13	.35***	.28**	.21	.43***
Internalizing Problems	.51***	.41***	.46***	.42***	.28***	.33***	.34***	.39***	.33*	.52***

Note. OVR = Overactivity, UNR = Underactivity, ADH = Attention-Deficit Hyperactive, SAP = Solitary Aggressive (Provocative), SAI = Solitary Aggressive (Impulsive), OPD = Oppositional Defiant, DIF = Diffident, AVO = Avoidant, DEL = Delinquent, LEH = Lethargic (Hypoactive), PKBS = Preschool and Kindergarten Behavior Scales, SC = Social Cooperation, Sint = Social Interaction, Sind = Social Independence, SS = Social Skills, SC/E = Self-Centered/Explosive, AP/O = Attention Problems/Overactive, AA = Antisocial/Aggressive, SW = Social Withdrawal, A/SP = Anxiety/Somatic Problems.  $n = 123$  except for the ASCA Delinquency Scale  $n = 59$  as the ASCA Delinquency scale is not scored for females under 12.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .0$

Table 2.

Means and Standard Deviations for ASCA core syndromes/global scales T scores and PKBS subscales/scales T scores

Scales	Mean	Standard Deviation
<u>ASCA Syndromes</u>		
Attention-Deficit Hyperactive	53.85	11.96
Solitary Aggressive (Provocative)	54.73	11.94
Solitary Aggressive (Impulsive)	51.50	9.50
Oppositional Defiant	51.40	10.51
Diffident	49.19	9.84
Avoidant	47.05	8.97
Delinquent	50.68	10.84
Lethargic	49.82	9.48
<u>ASCA Adjustment Scales</u>		
Overactivity	54.28	11.07
Underactivity	48.13	10.28
<u>PKBS Scales</u>		
Problem Behavior		
Self-Centered/Explosive	46.51	10.79
Attention Problem/Overactive	49.57	12.33
Antisocial/Aggressive	50.45	12.40
Externalizing Problems	48.45	12.04
Social Withdrawal	52.64	11.17
Anxiety/Somatic Problems	49.05	9.88
Internalizing Problems	50.85	10.70
PKBS Total	49.13	11.57

Note. ASCA = Adjustment Scales for Children and Adolescents, PKBS = Preschool and Kindergarten Behavior Scales.  $n=123$  for all scales except the ASCA Delinquency scale  $n=59$  as the ASCA Delinquency scale is not scored for females under 12.

Table 3.  
Pearson product-moment correlation coefficients among Preschool and Kindergarten Behavior Scales, Subscales, and Global, Scales

PKBS	Preschool and Kindergarten Behavior Scales (PKBS)									
	Social Skills			Problem Behaviors						
	SC	SIInt	SIInd	SC/E	AP/O	A/A	Ext. Prob.	SW	A/SP	Int. Prob.
<u>Social Skills</u>										
SC										
SInt	.54***									
SInd	.50***	.83***								
SS Total	.73***	.92***	.91***							
<u>Problem Behavior</u>										
SC/E	-.82***	-.41***	-.37***							
AP/O	-.85***	-.47***	-.42***	.86***						
A/A	-.83***	-.41***	-.42***	.85***						
<u>Externalizing Problems</u>										
SW	-.68***	-.72***	-.70***	.72***	.69***	.62***	.72***			
A/SP	-.34***	-.46***	-.56***	.46***	.41***	.32***	.42***	.69***		
<u>Internalizing Problems</u>										
	-.56***	-.65***	-.68***	.64***	.60***	.51***	.62***	.92***	.91***	

Note. PKBS = Preschool and Kindergarten Behavior Scales, SC = Social Cooperation, SIInt = Social Interaction, SIInd = Social Independence, SS = Social Skills, SC/E = Self-Centered/Explosive, AP/O = Attention Problems/Overactive, AA = Antisocial/Aggressive, SW = Social Withdrawal, A/SP = Anxiety/Somatic Problems.  $n = 123$

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 4.  
Pearson product-moment correlation coefficients among Adjustment Scales for Children and Adolescents (ASCA) Global Scales, Core Syndromes, and Supplementary Syndromes.

ASCA	Adjustment Scales for Children and Adolescents (ASCA)									
	OVR	UNR	ADH	SAP	SAI	OPD	DIF	AVO	DEL	LEH
OVR										
UNR	-.04									
ADH	.93***	-.009								
SAP	.78***	.01	.69***							
SAI	.62***	.06	.51***	.53***						
OPD	.65***	.07	.41***	.58***	.42***					
DIF	-.15	.93***	-.17	-.11	-.04	-.02				
AVO	.15	.71***	.10	.18*	.13	.12	.46***			
DEL	.38**	.30**	.40**	.40**	.44***	.11	.03	.49***		
LEH	.32***	.48***	.34***	.27**	.14	.11	.39***	.52***	.42**	

Note. OVR = Overactivity, UNR = Underactivity, ADH = Attention-Deficit Hyperactive, SAP = Solitary Aggressive (Provocative), SAI = Solitary Aggressive (Impulsive), OPD = Oppositional Defiant, DIF = Diffident, AVO = Avoidant, DEL = Delinquent, LEH = Lethargic (Hypoactive). . n=123 for all scales except the ASCA Delinquency scale n=59 as the ASCA Delinquency scale is not scored for females under 12.

\*p < .05. \*\*p < .01. \*\*\*p < .001.